

CLAIMS

1. An apparatus for determining a drug dosage comprising:
 - an input interface for receiving data on at least one patient's biochemical profile,
5 and data on at least one specific property of the drug;
 - processing means having a simulation module for simulating the effect of a certain dosage based on the received data, and an evaluation module for determining, based on a simulation on at least one dosage, a drug dosage for the at least one patient in question.
- 10 2. The apparatus of claim 1, wherein the evaluation module is adapted to determine said drug dosage for the at least one patient in question based on several simulations on different dosages.
3. The apparatus of claim 1 or 2, wherein the biochemical profile data comprises at least one parameter related to the at least one patient's metabolic pathways.
- 15 4. The apparatus of claim 3, wherein the biochemical profile data is determined based on measurements performed on a blood sample from the at least one patient.
5. The apparatus of claim 4, wherein the measurement is made using a scaffold technique.
- 20 6. The apparatus of any one of the claims 3-5, wherein the at least one parameter related to a metabolic pathway is at least one of: the speed of the particular reaction to which the pathway pertains, the concentration of at least one reactant in the metabolic pathway, and the time required for decomposition of the drug.
- 25 7. The apparatus of any one of the preceding claims, wherein the at least one specific property of the drug is at least one of: the distribution rate of the drug, the decomposition time of the active ingredients, and the decomposition time of possible by-products.
8. The apparatus of any one of the preceding claims, wherein the simulation module is formed with an equation based modelling language.

9. The apparatus of claim 8, wherein the programming language is further object-oriented.

10. The apparatus of claim 8 or 9, wherein the programming language further defines a multi-domain modelling capability.

5 11. The apparatus of any one of the preceding claims, wherein the simulation module is adapted to perform a metabolic pathway simulation based on the received data.

10 12. The apparatus of any one of the preceding claims, wherein the input interface further receives data specifying the most important metabolic pathways that are involved in the mechanisms of the drug in question, wherein the simulation module only performs simulations involving said specified pathways.

13. The apparatus of any one of the preceding claims, wherein the evaluation module determines a drug dosage based on the relation between desired levels of reactant concentration and drug concentration in the simulated process.

15 14. An automatic dosage device comprising an apparatus according to any one of claims 1-13.

15. The automatic dosage device of claim 14, further comprising a measurement unit for determining a patient's biochemical profile, said measurement unit being connected to the input interface of the apparatus.

20 16. The automatic dosage device of claim 15, wherein the measurement unit determines the patient's biochemical profile based on a blood sample.

17. The automatic dosage device of any one of claims 14-16, further comprising an output unit, such as a display, for communicating a recommended drug dosage for the patient in question to the user.

25 18. The automatic dosage device of any one of claims 14-17, wherein the device is arranged within a self-contained portable unit.

19. A computer-implemented method for determining a drug dosage comprising:

- receiving data regarding at least one patient's biochemical profile;
- 30 - receiving data regarding at least one specific property of the drug;

- simulating the effect of at least one dosage based on the received data; and
- determining a drug dosage for the at least one patient in question based on the outcome of said simulation.

20. The method of claim 19, further comprising the step of repeating said
5 simulation with at least one other dosage, wherein the step of determining a drug dosage for the at least one patient in question is based on the outcome of said simulations.

21. The method of claim 19 or 20, wherein the simulation step is repeated until a predetermined condition is met.

10 22. The method of claim 20, wherein the predetermined condition is one of: minimising possible side effects, attaining a certain effect, and optimisation to a certain degree.

23. The method of any one of claims 19-21, wherein the biochemical profile data comprises at least one parameter related to the at least one patient's metabolic
15 pathways.

24. The method of any one of the claims 19-22, wherein the biochemical profile data is determined based on at least one measurement performed on a blood sample from the at least one patient.

25. The method of any one of the claims 19-23, wherein the simulation performs a metabolic pathway simulation based on the received data.
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26. The method of any one of the claims 19-24, wherein the drug dosage is determined based on the relation between desired levels of reactant concentration and drug concentration in the simulated process.

27. A computer program comprising computer program code for executing
25 the method of any one of claims 19-25.

28. A computer-readable medium, having the computer program according to claim 26 recorded thereon.